



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200  
Fax 613 632-5246



**D5815-3**  
**Job Sheet 207572**



POSITIVE  
RECALL

Part No: D5815-3

Job Qty: 8 pcs

Part Name: Hoop

**POSITIVE RECALL**

EFFECTIVE 3/13/20 AUTH *[Signature]*



RELEASED \_\_\_\_\_ DATE \_\_\_\_\_

Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 2/27/20

Job Tracking No:

Due Date: 4/27/20

Created By: Jennifer Renwick

Type: Stock

Description:

Note: URF 20-522 DWG 5815 REV.A IPP REV:A NEW ISSUE 20.01.16 JV VERF:DD

Ship Via:

### Bill of Materials

### Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard Setup Hrs	Run Hrs	Workcenter/Supplier	Lead Time	Sign-off
100	Large Fab - Welded Assy-1	8 pcs	4/27/20		0.00	4.00	Large Fab - 1		
							Large Fab - 10		
							Large Fab - 2		
							Large Fab - 3		
							Large Fab - 4		
							Large Fab - 5	DAS 24	
							Large Fab - 6	9-89	
							Large Fab - 7		
							Large Fab - 8		
							Large Fab - 9		
							Large Fab - 11 (Various)		
							Large Fab - 12		
110	QC 5	8 pcs	4/27/20		0.00	0.00	QC 5 - 10		
							QC 5 - 12		
							QC 5 - 17		
							QC 5 - 18		
							QC 5 - 19		
							QC 5 - 22		
							QC 5 - 24		
							QC 5 - 3		
							QC 5 - 43		
							QC 5 - 49		
							QC 5 - 51		
							QC 5 - 58		
							QC 5 - 68		
							QC 5 - 9		
							QC 5 - 50		
							QC 5 - 30		
							QC 5 - 40		
							QC 5 - 61		
							QC 5 - 81		



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
CANADA  
TEL.: 1 613 632-5200  
Email: sales@dartaero.com  
www.dartaerospace.com

Container No: S264657



Part: D5815-3

Job No: 207572

Serial No/Batch: S264657

Revision: REV.A

Inspector:

Exp Date:

Instructions:

Date: 03/18/20

Plex 3/12/20 8:07 AM Dart.lajeunesse.marie

3/12/2020

[Dart Hawkesbury] Job Sheet - Lajeunesse, Marie

120 Conventional Mill - 1 - B4B 8 pcs

4/27/20

0.25 1.00

Conventional Mill - 1 - B4B

Conventional Mill - 2 - B4B

11/20/3/19

130 QC 2

8 pcs

4/27/20

0.00 0.00

QC 2 - 1

QC 2 - 12

QC 2 - 14

QC 2 - 17

QC 2 - 19

QC 2 - 2

QC 2 - 20

QC 2 - 22

QC 2 - 23

QC 2 - 25

QC 2 - 32

QC 2 - 33

QC 2 - 35

QC 2 - 39

QC 2 - 4

QC 2 - 40

QC 2 - 44

QC 2 - 45

QC 2 - 48

QC 2 - 49

QC 2 - 50

QC 2 - 51

QC 2 - 52

QC 2 - 57

QC 2 - 62

QC 2 - 63

QC 2 - 8

QC 2 - 66

QC 2 - 64

QC 2 - 65

QC 2 - 5

QC 2 - 71

QC 2 - 73

QC 2 - 69

QC 2 - 76

11/20/3/19

140 QC 8

8 pcs

4/27/20

0.00 0.00

QC 8 - 12

QC 8 - 14

QC 8 - 17

QC 8 - 20

QC 8 - 25

QC 8 - 3

QC 8 - 32

QC 8 - 33

QC 8 - 35

QC 8 - 39

QC 8 - 4

QC 8 - 44

QC 8 - 45

QC 8 - 49

QC 8 - 58

QC 8 - 8

QC 8 - 9

QC 8 - 68

QC 8 - 67

QC 8 - 1 (A)

QC 8 - 47

QC 8 - 40

11/20/3-23

Flex 3/12/20 3:07 AM Dart Lajeunesse, Marie

150 Packaging 3-1 - Stock - B4B 8 pcs	4/27/20	0.00 0.00	QC 8 - 52	
			QC 8 - 23	
			QC 8 - 57	
			QC 8 - 76	
			QC 8 - 51	
			Packaging 3 - 1 - B4B	
			Packaging 3 - 2 - B4B	
			Packaging 3 - 3 - B4B	
			Packaging 3 - 4 - B4B	
			Packaging 3 - 5 - B4B	
			Packaging 3 - 6 - B4B	
			Packaging 3 - 7 - B4B	
			Packaging 3 - 8 - B4B	
			Packaging 3 - 9 - B4B	
			Packaging 3 - 10 - B4B	
			Packaging 3 - 11 - B4B	
			Packaging 3 - 12 - B4B	
			Packaging 3 - 13 - B4B	
			Packaging 3 - 14 - B4B	
			Packaging 3 - 15 - B4B	
			Packaging 3 - 16 - B4B	
			Packaging 3 - 17 - B4B	DAS
			Packaging 3 - 18 - B4B	24
			Packaging 3 - 19 - B4B	9-89
			Packaging 3 - 20 - B4B	
			Packaging 3 - 21 - B4B	
			Packaging 3 - 22 - B4B	
			Packaging 3 - 23 - B4B	
			Packaging 3 - 24 - B4B	
			Packaging 3 - 25 - B4B	
			Packaging 3 - 26 - B4B	
			Packaging 3 - 27 - B4B	
			Packaging 3 - 28 - B4B	
			Packaging 3 - 29 - B4B	
			Packaging 3 - 30 - B4B	
			Packaging 3 - 31 - B4B	
			Packaging 3 - 32 - B4B	
			Packaging 3 - 33 - B4B	
			Packaging 3 - 34 - B4B	
			Packaging 3 - 35 - B4B	
			Packaging 3 - 36 - B4B	
			Packaging 3 - 37 - B4B	
160 QC 21 - SA	8 pcs	4/27/20	0.00 0.00	QC 21 - SA - 21
				QC 21 - SA - 70
				QC 21 - SA - 53

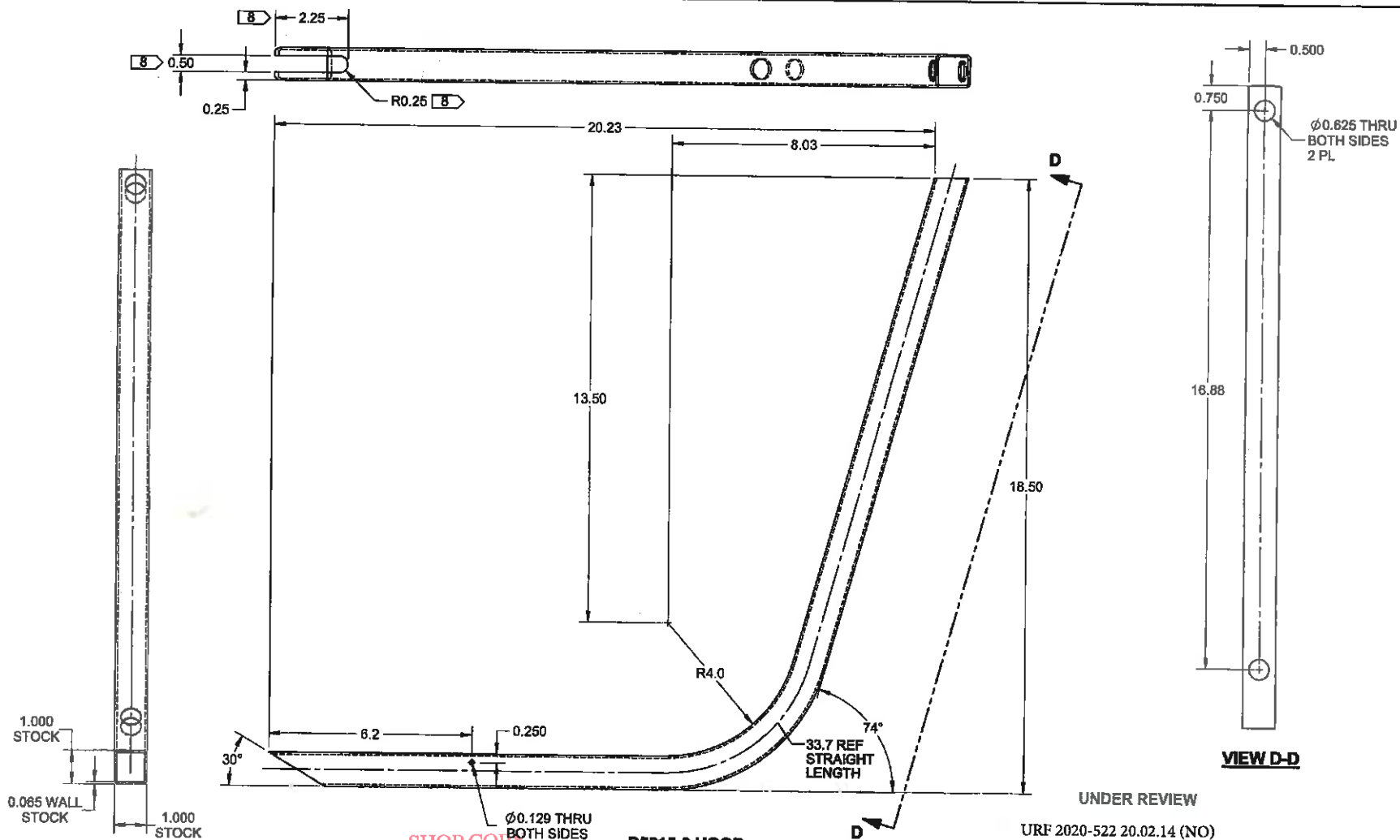
Part Op 100 - 1- Cut material to 36.5" 2- Bend and drill vent hole as per D5815-3 dwg 3- Remove markings on tube 4- Deburr  
 Descriptions: 110 - QC5- Inspect part completeness to step on W/O  
 120 - 1-Machine as per DWG 2 Drill holes 2 places 3-Deburr  
 130 - QC2- Inspect parts off machine FAI/FAIB  
 140 - QC8- Inspect parts - second check  
 150 - Identify as per dwg & Stock Location: \_\_\_\_\_  
 160 - QC21- Final Inspection - Work Order Release

## Job BOM

Part / Item	Component Name	Quantity	Operation	Container
M4130NTS1.000W.065	4130 Square Tube 1.000" X 1.000" X 0.065"W	24.4000 ft (3.05 ea)	100-Large Fab - Welded Assy-1	5250795

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
100-Large Fab - Welded Assy-1	M4130NTS1.000W.065	24	141	0
Part Specifications				
Specifications could not be found.				

Plex 3/12/20 8:07 AM Dart.lajeunesse.marie



UNDER REVIEW  
URF 2020-522 20.02.14 (NO)

- NOTES:
- 1) MATERIAL: AISI 4130N STEEL SQUARE TUBING, 1 X 0.065 WALL PER MIL-T-8736 OR AMS 6371/6360/6361/6362/6373/6374 REF DART SPEC M4130N-TS1.000W.065
  - 2) FINISH: NONE
  - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
  - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
  - 5) BREAK SHARP EDGES: 0.005 TO 0.010
  - 6) IDENTIFICATION: NONE
  - 7) WEIGHT: 2.09 lbs

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER

D5815-3 HOOP

RELEASED

2020 FEB 18

APPROVED

DESIGN  
DRAWN  
CHECKED  
MFG. APPR.  
APPROVED  
DE APPR.  
DATE

ZF  
ZF  
KPT  
DD  
NO  
CP

DART AEROSPACE LTD  
HAWKESBURY, ONTARIO, CANADA  
DRAWING NO.  
D5815  
TITLE  
BASKET HOOPS  
REV. A  
SHEET 3 OF 5  
SCALE  
NTS

COPYRIGHT © 2020 BY DART AEROSPACE LTD  
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

NO. 207572 MJS  
200312







Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# PURCHASE ORDER POHB045594



**Supplier:** FAC001-VU  
Factory Steel  
14020 Oakland Ave.  
Detroit, MI 48203 USA  
Phone: 313 883 6300  
Fax: 313 883 4883

**PO No:** POHB045594

**PO Date:** 1/16/20

**Due Date:** 2/4/20

**Purchase Order**

**Revision:**

**Revision Date:**

**Ship-To Contact:** Phone:

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**Via:** Ground

**Pynt Terms:** Net 30

**Freight Terms:**

**Special Comments:**

JAN 16 2020

## Items

Lino	Job	Part	Drawing	Supplier	Description	Status	Account	Due	Order	Received	Balance	Unit	Extended
Item				Part No				Date	Quantity	Quantity		Price (USD)	Price
1		M4130NTS0.750W.035			4130 Square Tube 0.750 X 0.035W : MATERIAL: AISI 4130N STEEL SQUARE TUBING PER ONE OF THE FOLLOWING SPEC'S: MIL-T-6736, AMS 6371, 6390, 6361, 6362, 6373 OR 6374	Firmed -		2/4/20	600 ft	0 ft	600 ft	\$7.25/ft	\$4,350.00
2		M4130NTS1.000W.065			4130 Square Tube 1.000" X 1.000" X 0.065"W : MATERIAL: AISI 4130N STEEL SQUARE TUBING PER ONE OF THE FOLLOWING SPEC'S: MIL-T-6736, AMS 6371, 6390, 6361, 6362, 6373 OR 6374	Firmed -		2/4/20	160 ft	0 ft	160 ft	\$11.70/ft	\$1,872.00

**Grand Total:** \$6,222.00

Plex 1/16/20 11:38 AM Dart.Lavoie.Chantal

# PACKING LIST

No. 67371

PG 1 OF 1

FACTORY STEEL & METAL SUPPLY 14020 OAKLAND AVENUE DETROIT, MI 48203  (313)883-6300 PHONE (313)883-4883 FAX	CUSTOMER PO POHB045594		BUYER CHANTEL LAVOIE Tel (613) 632-3336 Fax (613) 632-4443	SHIP DATE 01/21/2020
	CUSTOMER JOB			SHIP VIA ****TRUCK****
SOLD TO DART AEROSPACE 1270 ABERDEEN STREET HAWKESBURY, ON K6A 1K7	SALES ORDER 60306	ORDER DATE 01/16/2020	SALES REP MICK HALON	RESALE # 59-2958719
	SHIP TO DART AEROSPACE 1270 ABERDEEN STREET HAWKESBURY, ON K6A 1K7		SHIP INST CALL WHEN READY	CARRIER TRUCK
			PRO#	BLIND Y/N N
			TERMS NET 30 DAYS	FOB DETROIT

LINE	QUANTITY	DESCRIPTION	WIDTH	LENGTH	WEIGHT
1	609.917 FT	4130N CD SMLSS SQ TUBE 3/4" X .035W  Tag Mill Ref # Heat 153513 023679 616506	Pcs Length 26 20' /24' RL	20' /24' RL  Feet 609.917	207.554  Weight 207.554
2	171.333 FT	4130N CD SMLSS SQ TUBE 1" X .065W  Tag Mill Ref # Heat 153514 072143 072067859	Pcs Length 7 22' /23' RL	22' /23' RL  Feet 171.333	141.606  Weight 141.606
3	1 PCS	PACKING CHARGES  MTRS (CIRCLE) FAX SHIPMENT INVOICE ALL  DATE: _____ INITIAL: _____			

TOTAL WT 349 LBS							
RECEIVED BY - SIGNATURE		RECEIVED BY - PRINTED NAME			DATE RECEIVED		



LINE 2

## MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4130NTS 1.000W.065 PO / BATCH NO.: P0113045594  
 DATE: JAN 27 2020 5250795

MATERIAL CERT REC'D: YES  
 QUANTITY RECEIVED: 171 PT  
 QUANTITY INSPECTED: 171 PT  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 1.000W.065  
 THICKNESS RECEIVED: 1.000W.065  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <u>(N)</u>	
CORRECT FINISH	<u>(Y)</u> N	
CORROSION	Y <u>(N)</u>	
CORRECT GRAIN DIRECTION	<u>(Y)</u> N	
CORRECT MATERIAL PER M-DRAWING	<u>(Y)</u> N	MIL - T - 6736
CORRECT THICKNESS	<u>(Y)</u> N	
PHOTO REQUIRED	Y <u>(N)</u>	
CORRECT REF # TO LINK CERT	<u>(Y)</u> N	07-2067859
CORRECT MATERIAL IDENTIFICATION	<u>(Y)</u> N	
CORRECT M# ON THE MATERIAL	<u>(Y)</u> N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <u>(N)</u>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <u>(N)</u>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

*testers located in the Quality Office*

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>DAS</u>	82	SIGNED OFF BY: <u>—</u>	
DATE: <u>JAN 27 2020</u>	2-89	DATE: <u>—</u>	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

LIME 2  
M4130NTS 1.000W.065

5250795  
072067859



DESIGN DH	DRAWN BY DH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. M4130N-TS	REV. A SHEET 1 OF 1
DATE 05.02.09		TITLE 4130N SQUARE TUBING	SCALE NTS
A	05.02.09	NEW ISSUE	

PURCHASE MATERIAL:

AISI 4130N STEEL SQUARE TUBING PER ONE OF  
THE FOLLOWING SPEC'S: MIL-T-6736, AMS 6371,  
6360, 6361, 6362, 6373 OR 6374

PART NUMBER:

M4130N-TS | A.AAA | W | .TTT |

DAS  
82  
9-88

WHERE A.AAA = WIDTH IN INCHES  
TTT = WALL THICKNESS IN INCHES

EXAMPLE: 0.50" X 0.035" WALL = M4130N-TS0.500W.035

RELEASED  
05.02.09

Copyright © 2005 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



## TEST REPORT

(2)

5753		MICHIGAN SEAMLESS TUBE		SOUTH LYON, MICHIGAN 48178		SHIPMENT						
ORDER NUMBER	CUSTOMER ORDER NUMBER	DATE	OPC	COM	DIV	NET SLS	GR SLS	ACCOUNT NUMBER	US	BN	2ME	PAGE
072143	2962	04/14/16	22	00	16	16	01	02598001PCO				1
FACTORY STEEL & METAL SUPPLY 14020 OAKLAND DETROIT MI USA 48203					FACTORY STEEL & METAL SUPPLY 14020 OAKLAND AVENUE DETROIT MI 48203							

## ROUTING

OPEN TOP/FULLY TARPED/FOB SOUTH LYON MI

PPD TRUCK

ANALYSIS	SHAPE	PRODUCT	PC	ANNEAL	REQUESTED
4130	SQUARE	COLD DRAWN		STRESS RELIEVED	05/13/16
SEAMLESS	SPECIFICATION	CHS	DESCRIPTION	PROMISE	
	AMS-6371/A519		CD ALLOY AIRCRAFT		05/13/16

SPECIAL INSTRUCTIONS  
OIL (SQUARE) DEAR COMPLIANT. 1-HEAT MAX. MARK 1-START TO A519-96,  
MILT-6736BN NOTE-2, AMS-6360M, AMS-6371K, (AMS-T-6736AN, 4130H &  
AMS-2301K. DECARB LEVELS TO AMS-6371. 80 KSI MIN YLD-AIR 90 KSI.  
T/R TO INCL CHEM & PHYS. MAGNETIC PARTICLE TESTING NOT  
GUARANTEED. PAINT ENDS-RED. AIR LONGEST LENGTH.

DAP  
8  
9-8

ITEM	QUANTITY	O.D.	I.D.	WALL	LENGTH	WT/FT	WEIGHT	
		1.000		.065 AVG		.8265		09:01:48 05/16/16

ITM BALE --BALE--

NUM	NUM	PCS	FTG	HEAT NO.
1	1 2	120	2940	072067859
1	2 2	104	2550	072067859
1	3 2	16	388	072067859

LENGTH
RAND 20'-26'
RAND 20'-26'
RAND 20'-26'

ITM	PART
STATUS	NUMBER
COM	
COM	
COM	

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Al	REMARKS
072067859	.310	.480	.012	.017	.330	.200	1.070	.170	.210	.019	EF GERDAU

HEAT NO.	ULT. STR. PSI	YIELD, PSI	% ELONG	HARDNESS	HYDRO TEST PSI	ULTRA SONIC %	EDDY CURRENT	EXPANSION
072067859	113,623	100,318	20.8	HBW 226-248			OK	
072067859	113,199	100,381	22.0	HBW 226-248				
072067859	116,653	101,631	22.5	HBW 226-248	BEND	FLATTEN	FLARE	REV. FLATTEN
072067859	112,167	98,875	22.0	HBW 226-248				FLANGE

DECARB OK GRAIN SIZE 8  
FREQ 0.00 SEV 0.00  
MACROS: S1 R1 C1  
J1 J2 J3 J4 J5 J6 J7 J8 J9 J10  
S1 S1 S0 49 47 43 37 36 34 31  
MELTED & MANUFACTURED USA

Manager - Quality Assurance

We hereby certify that the reported data are  
correct according to Michigan Seamless Tube  
tests and those of its suppliers.

8.2.P8.F8 Rev



001

82 P8 FB Rev

Entered: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. \_\_\_\_\_

Route update only ☐

Job: _____  Part No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/>	<b>DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/> </div> <div>           Eng. (Non-AW) <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Water Jet <input type="checkbox"/>            Supplier <input type="checkbox"/>            Quality <input type="checkbox"/> </div> </div>			
Date : _____	Sequence #: _____	QTY Affected : _____		MRB (QSI042)	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor	
				QC / QA Coordinator	
<b>Root Cause</b>  <div style="display: flex; justify-content: space-between;"> <div>           Operator <input type="checkbox"/>            Manufacturing Process <input type="checkbox"/>            Equip/Tooling <input type="checkbox"/>            Handling/Presservation <input type="checkbox"/>            Material <input type="checkbox"/>            Product Improvement <input type="checkbox"/>            Process Improvement <input type="checkbox"/>            Human Factors <input type="checkbox"/> </div> <div> <input type="checkbox"/> Pressure/Forced  <input type="checkbox"/> Bending  <input type="checkbox"/> Crushing  <input type="checkbox"/> Cracks  <input type="checkbox"/> Crimp/Kink/Ripple/Wave/Twist  <input type="checkbox"/> Marks/Chatter  <input type="checkbox"/> Mislabeled         </div> <div> <input type="checkbox"/> Contamination  <input type="checkbox"/> Misaligned/off center  <input type="checkbox"/> BOM/Route  <input type="checkbox"/> Broken/Damage/Defect  <input type="checkbox"/> Incomplete/Unclear Instructions  <input type="checkbox"/> Drill Holes  <input type="checkbox"/> Fit/Function         </div> <div> <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Folio/Program  <input type="checkbox"/> Grain Direction  <input type="checkbox"/> Weld  <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Out of Sequence  <input type="checkbox"/> Off-set/Set-up         </div> <div> <input type="checkbox"/> Positioned Wrong  <input type="checkbox"/> Outside Tolerance  <input type="checkbox"/> Drawing  <input type="checkbox"/> Finish  <input type="checkbox"/> Part Lost/Missing  <input type="checkbox"/> Misread         </div> </div>		<b>FAULT CATEGORY</b>  Other/Details: _____			